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ABSTRACT

Many educational institutions have recently started to move some of their course materials online, and then used the terms "flexible delivery" or "flexible learning" both in their everyday discussions and in their promotional literature. However, the use of asynchronous learning technologies does not of itself make for true flexibility in learning. In almost all cases, the flexibility extends to location only. In very few cases does the flexibility extend to the method of learning or the order of the material to be studied; and in almost none does the flexibility extend to any temporal aspects. This paper suggests some ways forward for institutions seeking to make their courses truly flexible. The following steps are seen to be essential: a rationalization in the modes of course delivery; a comprehensive redesign of course materials; a revision of the types of assessment used; and a change to institutional timelines. Each of these four steps is dealt with separately in this paper. (Contains six references.) (Author/AEF)

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FROM DISTANCE EDUCATION TO FLEXIBLE LEARNING

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ABSTRACT

Many educational institutions have recently started to move some of their course materials online, and then used the terms "flexible delivery" or "flexible learning" both in their everyday discussions and in their promotional literature. However, the use of asynchronous learning technologies does not of itself make for true flexibility in learning. In almost all cases, the flexibility extends to location only. In very few cases does the flexibility extend to the method of learning or the order of the material to be studied; and in almost none does the flexibility extend to any temporal aspects.

This paper suggests some ways forward for institutions seeking to make their courses truly flexible.

INTRODUCTION

A large number of universities and other educational institutions have recently been moving their course materials online, so that they may be used as the foundations for courses being undertaken by students remote from the campus, or by on-campus students as a supplement to face-to-face sessions, or a combination of both. More often than not these institutions will then use the terms "flexible delivery" or "flexible learning" both in their everyday discussions and in their promotional literature. However, the use of asynchronous learning techniques, such as placing notes on the Web, or arranging for the use of electronic discussion lists, does not make for true flexibility in learning. In almost all cases, the flexibility will be in location only; that is, the students are enabled to access the materials from anywhere with good internet connections. In very few cases does the flexibility extend to the method of learning or the order of the material to be studied; and in almost none does the flexibility extend to any temporal aspects. Students must still enrol at a certain (often inconvenient) time, take assessment items at a certain (often inconvenient) time, and complete their study at a certain (often inconvenient) time.

And yet skills such as walking, or swimming, or driving, or playing chess, are all learnt without such fixed constraints. Indeed, in almost no other aspects of human learning, except for courses at recognized academic institutions, are such strict temporal limitations imposed.

What does it mean for an institution to offer truly flexible learning? How does that differ from current practice? And what are the major obstacles that need to be overcome?

CURRENT MODELS OF FLEXIBLE DELIVERY

At its most minimal, the term flexible delivery can be taken to mean any form of delivery where students have a choice of study mode. This could mean, for example, that students are enabled to study from a distance via the provision of printed materials.

More recently, the term has been used to describe almost any course that utilizes advanced learning technologies. For example, four examples of models of web-based delivery that are in current use for the delivery of computer science or information system courses have been described in [1].

In the most minimalist of these four models, the naïve model, face-to-face lecture notes are placed online; the course is then considered "flexible" in the sense that distance education students have access not only to pre-

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distributed printed materials but also to online lecture notes.

Even with the other three more sophisticated models, (the standard model, the evolutionary model [3], and the radical model [4], [5]), flexibility is enabled only in the sense that students unable to attend on-campus lectures and tutorials have a range of varied web-based facilities and email-based discussion groups to assist them to learn, and to enable greater interaction, both with the instructors and with other students.

Occasionally institutions have experimented with the design and implementation of courses including a wider definition of flexibility; in almost all cases, however, the experiments tend to have been with a single course, with a limited number of students, and limited scope [2].

So we must ask the question, to what extent are such models as those described above, and others like them, truly flexible? The current author has proposed a possible classification scheme for flexible learning, which would seem to indicate that most current courses do not rate very highly [6].

LIMITATIONS OF CURRENT MODELS

While all of the models described above do indeed enable students physically situated at remote locations to study courses via the internet, true flexibility is denied because (a) students still have to abide by a fixed method of study, (b) students still have to study the course materials in a particular order, and (c) students still have to abide by administrative timelines decided by the institution.

Why Do Students Have to Abide by a Fixed Method of Study?

The reasons here are primarily economic—to provide a variety of possible modes of study requires greater investment in time and materials. Giving students the choice of individual or group work, or learning from different texts, or (to take an extreme case) learning programming while allowing a choice of different programming language, has in the past been seen as just too hard and just too expensive.

Why Do the Course Materials Have to Be Studied in a Particular Order?

On occasion, this is because the nature of the material is such that concepts build one upon the other, and the particular sequence is largely determined by the nature of the material itself (for example, it may be thought desirable to learn about the properties of concrete before learning how to design concrete structures). However, more often the primary reason for a particular order is not the increasing complexity of the material, but rather the need to learn according to the order of the quizzes, tests, and other assessment items that are presented through the course (there is little point in learning about programming principles in week one and design principles in week two if the test on design occurs at the end of week one and the test on programming occurs at the end of week two).

Why Do Institutions Have So Many Administrative Timelines?

This is the primary obstruction to true flexibility, and here the primary reasons are many and complex—they would include reasons that are primarily historical, cultural, political, and economic. And, in large part, institutions in many countries are hamstrung by bureaucratic government regulations that require the reporting of detailed statistics, where the models used assume fixed timelines for enrolment, withdrawal, and completion.

TOWARDS TRUE FLEXIBLE LEARNING

In a learning environment which seeks to be truly flexible, students should be able to enroll when they want, study from any location at times of their own choosing, take assessment items when they feel they are ready, and complete as soon as they are able.

For this to become a reality, all of the obstacles detailed in the earlier sections need to be overcome. Most

educational institutions are, by nature, fairly conservative and resistant to change. However, the rewards for those able to adapt themselves to the new environment are potentially large. So how should universities seeking to make their courses as flexible as possible set about making the necessary changes?

The following steps are seen to be essential.

- a rationalization in the modes of course delivery
- a comprehensive redesign of course materials
- a revision of the types of assessment used
- a change to institutional timelines

These four steps will be dealt with separately. None of the four are without difficulties.

A Rationalization in the Modes of Course Delivery

No institution seeking to compete in the modern global environment can afford to provide courses in three completely different formats, yet that is precisely what many have chosen to do by default. Where once courses were provided only face-to-face, the need to attract distance education students has meant delivery also by means of printed materials; and the advent of the internet has meant delivery also online.

As a result, the same lecture will often be delivered to one group of students in a live session by an instructor; again in printed form prepared prior to the start of the semester; and yet again in the form of an html page or a pdf document provided online via the Internet.

This is, of course, not cost-effective. For the institution seeking maximum flexibility at a reasonable cost, the first two of these methods should be dispensed with, and all efforts put into effective and comprehensive delivery of the material online.

Instructors will need to be available on a continuous basis. Thus, rather than having the responsibility for one or two courses per semester, in the new flexible environment it may be that an instructor has overall responsibility for one course for an extended period, perhaps even two to three years. The instructor can expect to have to field questions and comments from students continuously throughout this period.

A Comprehensive Redesign of Course Materials

Face-to-face sessions are necessarily sequential in nature. Printed chapters in a book are sequential too, but at least here the adventurous reader can skip ahead.

No medium is better suited to a variety of possible orders than the Internet, with its built-in hyperlinks. Students are easily enabled to study the material in an order that suits them, rather than a single pre-ordained order laid down by the instructor.

The materials should thus be designed on the basis that the order of study is uncertain. No longer should instructors assume that the student has studied Module 4 prior to Module 5, nor that the most complex material has to be placed at the end of the course.

This means that the face-to-face lectures used for so many years are unlikely to form a good basis for effective delivery online. Instead, the materials will almost certainly need to be redesigned not only to make use of the specific strengths (hyperlinks, graphics, animations, etc) provided by the new medium, but also to take advantage of the fact that the Web enables simplified non-sequential access to the course materials.

It is important to note, however, that in the truly flexible environment, there is no longer a need for new course materials and assessment items to have to be delivered every semester. In fact, quite the opposite: materials should be deliberately designed to last for extended periods. Thus, many of the costs and stresses associated with traditional delivery methods may in practice be significantly reduced.

A Revision of the Types of Assessment Used

Difficult as both rationalization and redesign are, both pale into some degree of insignificance when compared to the problem of assessment. In the conventional environment, each assignment item is normally due at some particular date and time, and all students attend

examinations simultaneously. If, on the other hand, students can take assessment items at times of their own choosing, what implications does this have?

First, there cannot be direct supervision. This would be both impractical and uneconomic. So some form of assessment must be devised which the student can take unsupervised. This means, in practice, that there cannot be any restriction on the materials to which the student is allowed access.

Second, the assessment must be made available for completion at any time. No longer is it possible to plan based on two or three examination periods per year, for example.

Third, students should not be put at an undue disadvantage because of any failure in technology. Thus, timed online tests, one of the most commonly-used forms of assessment associated with advanced learning technologies, should be avoided wherever possible.

What options does that leave? The most obvious option, the setting of different assessment items for each student in a course, while desirable, is unlikely to be feasible.

However, options do remain. In many conventional courses, take-home examinations are the norm. In others, students are given a list of possible examination questions at the beginning of the course, and informed that the examination will consist of a subset. Both of these point to possible ways forward.

Since students can elect to take assessment items at any time, care must be taken to ensure that solutions to an assessment item made available on Tuesday cannot subsequently be used for an assessment item on Wednesday.

The preferred method of assessment under such circumstances is likely to vary according a number of factors, including the nature of the course itself - for example, whether the content is mainly theoretical or practical, and only guidelines can be given here.

Options include: the use of open-book online quizzes, but only where these are untimed, or alternatives are readily available should the technology fail during the taking of a quiz, and questions are randomly selected from a large data-bank; tests which consist of a selection of essay-style questions (which students can choose to submit at any time, of course); and problem-solving tasks where students provide explanations as to their methods of solution.

The use of online electronic submission enables the use of programs specifically designed to check for plagiarism and the copying of unreferenced materials, and it would seem likely that the use of such programs will assume much greater importance in truly flexible delivery.

A Changes to Institutional Timelines

Institutional timelines are generally of three types: timelines imposed by the instructor, normally for pedagogical reasons; timelines imposed by the bureaucracy of the institution, normally for reasons of administrative efficiency; and timelines imposed by outside agencies such as state or federal governments, normally for reasons of accountability and funding.

In the truly flexible model, the first of the three, timelines imposed by the instructor, should be dispensed with entirely. Students should be free to study at their own pace, according to their wishes and the demands of their other commitments, whether they be work-related, social, religious, or whatever.

The second of the three, timelines imposed by the institution, should also be dispensed with. This implies that institutions need to reform their procedures so as to be able to accept enrolments into both programs and course at any time of the year, without the restriction of artificial deadlines. Similarly, successful completion of courses needs to be able to be recorded at any time.

Both administrators and academics will be freed from the limitations of "terms" or "semesters" when students

are actively studying, and vacation periods when they are not. Undergraduate students will expect to be able to learn at any time, in much the same way that such a facility is taken for granted by PhD and postgraduate students. One consequence of this is that where possible, each course should be covered by a small team of academics, rather than by a single individual.

The one deadline that institutions may be justified in retaining is the limit to the time a student can spend enrolled in a course without successful completion. Without such a limit, it would be possible for students to remain in a course effectively forever. This is not advantageous to the institution, for two reasons; firstly, the student's presence in the course is likely to be expensive in terms of staff time and resources; and secondly, many courses change over time, and it would be inappropriate for a student to claim successful completion based on mastery of very old material (while one is happy to accept that a student passing Programming 101 in 1972 may well have learnt ALGOL, the same basis would not be acceptable for passing Programming 101 in 2002, for example).

The third of the three timelines, those imposed by outside agencies, are the least easy for the institution to change, for obvious reasons. Nevertheless, it seems at least feasible that the institution seeking to make truly flexible learning a reality would be able to negotiate alternative reporting arrangements. The details of such arrangements would vary from country to country and even state to state, and are clearly beyond the scope of this paper to cover in detail. Nevertheless, the direction is clear: no longer should students be considered to be enrolled in particular courses for particular pre-defined semesters. That is, enrolment number should no longer carry with them implications about specific dates of enrolment, or expected dates of completion.

SUMMARY

This paper has indicated that so-called "flexible learning" is, more often than not, only traditional distance education with printed materials replaced by, or supplemented with, material on the Web, and that the indicated flexibility rarely extends beyond one particular aspect, the geographical location of the learner.

True flexibility is achieved only when the use of advanced learning technologies is such as to enable learners to study at times of their own choosing, without the necessity to abide by antiquated procedures and timelines.

Some difficulties of truly flexible learning have been outlined, and some ways forward have been suggested.

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